

Ad cont

--23. The structure of claim 21 wherein said first capacitor electrode, said first barrier layer, said copper seed layer, said dielectric, said second barrier layer, and said second capacitor electrode are fabricated in a single ionized metal plasma tool.--

THE

--26. The structure of claim 21 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--28. The structure of claim 21 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.--

--29. The structure of claim 21 wherein said dielectric comprises tantalum nitride having a nitrogen content of approximately 60%.--

--30. The structure of claim 21 wherein said dielectric comprises ceramic tantalum nitride.--

--31. The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in each of said first and second barrier layers to be approximately 21%.--

--32. The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be to be at least 30%.--

--33. The structure of claim 22 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be approximately 60%.--

--34. A capacitor comprising:

- a first capacitor electrode comprising a bottom interconnect metal segment;
- a first barrier layer over said bottom interconnect metal segment;
- a seed layer over said first barrier layer;

a dielectric over said seed layer;

a second barrier layer over said dielectric;

a second capacitor electrode comprising a top interconnect metal segment, wherein said bottom interconnect metal segment, said first barrier layer, said seed layer, said dielectric, said second barrier layer, and said top interconnect metal segment are fabricated in a single tool.--

--35. The structure of claim 34 wherein said single tool is a single ionized metal plasma tool.--

--36. The structure of claim 34 wherein said bottom interconnect metal segment comprises copper.--

--37. The structure of claim 34 wherein said top interconnect metal segment comprises copper.--

--38. The structure of claim 34 wherein said first barrier layer comprises metallic tantalum nitride.--

--39. The structure of claim 34 wherein said second barrier layer comprises metallic tantalum nitride.--

B² cont.

--40. The structure of claim 34 wherein said first barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--41. The structure of claim 34 wherein said second barrier layer comprises metallic tantalum nitride having a nitrogen content of approximately 21%.--

--42. The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of at least 30%.--

--43. The structure of claim 34 wherein said dielectric comprises tantalum nitride having a nitrogen content of approximately 60%.--

--44. The structure of claim 34 wherein said dielectric comprises ceramic tantalum nitride.--

--45. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in each of said first and second barrier layers to be approximately 21%.--

--46. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be at least 30%.--

0076729
0076730
0076731
0076732
0076733
0076734
0076735
0076736
0076737
0076738
0076739
0076740
0076741
0076742
0076743
0076744
0076745
0076746
0076747
0076748
0076749
0076750
0076751
0076752
0076753
0076754
0076755
0076756
0076757
0076758
0076759
0076760
0076761
0076762
0076763
0076764
0076765
0076766
0076767
0076768
0076769
0076770
0076771
0076772
0076773
0076774
0076775
0076776
0076777
0076778
0076779
0076780
0076781
0076782
0076783
0076784
0076785
0076786
0076787
0076788
0076789
0076790
0076791
0076792
0076793
0076794
0076795
0076796
0076797
0076798
0076799
0076800
0076801
0076802
0076803
0076804
0076805
0076806
0076807
0076808
0076809
0076810
0076811
0076812
0076813
0076814
0076815
0076816
0076817
0076818
0076819
0076820
0076821
0076822
0076823
0076824
0076825
0076826
0076827
0076828
0076829
0076830
0076831
0076832
0076833
0076834
0076835
0076836
0076837
0076838
0076839
0076840
0076841
0076842
0076843
0076844
0076845
0076846
0076847
0076848
0076849
0076850
0076851
0076852
0076853
0076854
0076855
0076856
0076857
0076858
0076859
0076860
0076861
0076862
0076863
0076864
0076865
0076866
0076867
0076868
0076869
0076870
0076871
0076872
0076873
0076874
0076875
0076876
0076877
0076878
0076879
0076880
0076881
0076882
0076883
0076884
0076885
0076886
0076887
0076888
0076889
0076890
0076891
0076892
0076893
0076894
0076895
0076896
0076897
0076898
0076899
0076900
0076901
0076902
0076903
0076904
0076905
0076906
0076907
0076908
0076909
0076910
0076911
0076912
0076913
0076914
0076915
0076916
0076917
0076918
0076919
0076920
0076921
0076922
0076923
0076924
0076925
0076926
0076927
0076928
0076929
0076930
0076931
0076932
0076933
0076934
0076935
0076936
0076937
0076938
0076939
0076940
0076941
0076942
0076943
0076944
0076945
0076946
0076947
0076948
0076949
0076950
0076951
0076952
0076953
0076954
0076955
0076956
0076957
0076958
0076959
0076960
0076961
0076962
0076963
0076964
0076965
0076966
0076967
0076968
0076969
0076970
0076971
0076972
0076973
0076974
0076975
0076976
0076977
0076978
0076979
0076980
0076981
0076982
0076983
0076984
0076985
0076986
0076987
0076988
0076989
0076990
0076991
0076992
0076993
0076994
0076995
0076996
0076997
0076998
0076999
0077000

22
Penell

--47. The structure of claim 35 wherein a percentage of nitrogen partial flow in a mixture of gases in said ionized plasma tool is adjusted so as to cause a nitrogen content in said dielectric to be approximately 60%.--

09704469 044604
T09T069T0604